1. (Currently Amended) A molecular separator apparatus, comprising:

at least one separator with at least one annulus disposed therein;

a flux cartridge with a semi-permeable membrane seated inside said annulus, wherein a fluid ring exists between an interior surface of the annulus and an exterior surface of the flux cartridge;

a first pump in fluid communication with the separator capable of delivering an influent fluid containing at least one contaminant into the separator, wherein the pressure delivered by the first pump provides kinetic energy to the influent fluid to promote turbulent flow within the fluid ring of the separator which results in the retention of contaminant particles on the exterior surface of the flux cartridge and the collection of the filtered fluid within an interior chamber of the flux cartridge;

wherein the first pump delivers contaminated fluid influent into the fluid ring of the separator through two alternating fluid paths comprising a first fluid path and a second fluid path, wherein the contaminated fluid influent is delivered through the first fluid path to the fluid ring by the movement of a piston inside the first pump from a first position to a second position and is delivered through the second fluid path to the fluid ring by the movement from said second position of said piston toward the first position and,

a second pump in fluid communication with the separator capable of reversing the flow of fluid through the flux cartridge, wherein filtered fluid is pumped into the fluid ring from the interior chamber of the flux cartridge which provides for the removal of the contaminant particles from contact with the exterior surface of the flux cartridge and transports a substantial portion of the contaminant particles out of the separator.

2. (Original) The apparatus according to claim 1, further comprising:

at least one concentrator in fluid communication with the separator, containing at least one annulus disposed therein; and,

a flux cartridge with a semi-permeable membrane seated inside the concentrator annulus, wherein a fluid ring exists between the interior surface of the annulus and the exterior surface of the flux cartridge, wherein the contaminant particle waste and fluid flushed from the separator enters the interior chamber of the flux cartridge seated within the concentrator and wherein contaminant particles of a desired dimension are retained on the interior surface of the flux cartridge and the filtered fluid is collected in the fluid ring of the concentrator.

3. (Original) The apparatus according to claim 2, further comprising:

a purge air source in fluid communication with the concentrator capable of providing

pressurized air into the fluid ring of the concentrator for removing concentrated waste from contact with the interior surface of the concentrator flux cartridge and transporting the concentrated waste out of the concentrator.

4. (Original) The apparatus according to claim 2, further comprising:

a drying air source in fluid communication with at least one concentrator capable of dewatering the concentrated waste particles located within the concentrator.

5. (Original) The apparatus according to claim 1, further comprising:

a slipstream fluid path in fluid communication with the separator which acts to increase

the turbulent flow of contaminated influent within the separator thereby enhancing the filtration efficiency of the separator.

6. (Original) The apparatus according to claim 1 further comprising a control panel which includes a plurality of control inputs for monitoring and operating the molecular separator apparatus by a user.

7. (Canceled).

8. (Original) The apparatus according to claim 1 wherein the flow of fluid into and out of the separator is controlled by at least one poppet valve.

9. (Original) The apparatus according to claim 2 wherein the flow of fluid into and out of the concentrator is controlled by at least one poppet valve.

10. (Original) The apparatus according to claim 1 wherein the separator can separate contaminant particles larger than fifty angstroms in dimension from a fluid.

11. (Original) The apparatus according to claim 1 comprising a plurality of separators which are operated in at least one of a series or parallel configuration.

12. (Original) The apparatus according to claim 1 wherein only one separator is in fluid communication with the second pump and wherein the flow of fluid received from the second pump is alternated between a plurality of separators at regular intervals and the filtered fluid from the plurality of separators that are not in fluid communication with the second pump bypass the second pump and flow directly into a collection reservoir.

13. (Original) The apparatus according to claim 2 further comprising a plurality of concentrators which are operated in at least one of a series or parallel configuration.

14. (Original) The apparatus according to claim 1 wherein at least one poppet valve controls the flow of fluid into the separator.

15. (Original) The apparatus according to claim 2 wherein at least one poppet valve controls the flow of fluid into the concentrator.

16. (Original) The apparatus according to claim 1 wherein a plurality of poppet valves are cycled incrementally to control the flow of fluid through the separator.

17. (Original) The apparatus according to claim 2 wherein a plurality of poppet valves are cycled incrementally to control the flow of fluid through the concentrator.

18. (Original) The apparatus of claim 1 wherein the molecular separator is detachably secured to a wheeled transport.

19. (Currently Amended) The apparatus of claim ~~2~~ 1 further comprising:

at least one transition plate in fluid communication with the separator for distributing the influent fluid stream into the separator.

20. (Currently Amended) The apparatus of claim ~~1~~2 further comprising:

at least one transition plate in fluid communication with the concentrator for distributing the influent fluid stream into the concentrator.

21. – 38. (Canceled)